

WASHINGTON DEPARTMENT OF ECOLOGY
ENVIRONMENTAL ASSESSMENT PROGRAM
FRESHWATER MONITORING UNIT
STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 32E050
STATION NAME: North Fork Touchet River above Dayton
WATER YEAR: 2012
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Introduction

Watershed Description

The North Fork Touchet River originates deep in the Blue Mountains at an elevation of over 6,000 feet. The watershed of the North Fork Touchet River is mainly forested with small farms in the valleys of the lower section. The North Fork Touchet River joins the South Fork Touchet River just above the city of Dayton to form the mainstem Touchet River. It contains a population of steelhead, spring Chinook, and bull trout.

Gage Location

The gage is located on the left bank, downstream of the South Fork Touchet Road bridge, southeast of the town of Dayton, WA. It is located at river mile 0.5.

Table 1.

Drainage Area (square miles)	112 (Streamstats)
Latitude (degrees, minutes, seconds)	46° 17' 50" N
Longitude (degrees, minutes, seconds)	117° 57' 04" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	160
Median Annual Discharge (cfs)	82
Maximum Daily Mean Discharge (cfs)	1040
Minimum Daily Mean Discharge (cfs)	25
Maximum Instantaneous Discharge (cfs)	1510
Minimum Instantaneous Discharge (cfs)	25
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	365
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	40
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	9

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

Peak flow occurred on April 30, 2012 during seasonal runoff.

A significant channel change occurred during a high flow event in April 2011. These high flows deposited a gravel bar near the staff gage and terminal end. This gravel bar isolated the staff gage and terminal end from the main channel. The staff gage and terminal end are now in a side channel. It was discovered later in the year that the water elevation changes in the side channel did not reflect the water elevation changes in the main channel, thus compromising the logger and gage height readings.

See stage record narrative for more information on this occurrence.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	n/a
Weighted Rating Error (% of discharge)	12.8
Total Potential Error (% of discharge)	n/a

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	7	8	9
Period of Ratings	10/1/11 to 3/30/12	3/30/12 to 9/30/12	9/19/12 to 9/30/12
Range of Ratings (cfs)	25 to 3630	26 to 3630	26 to 3630
No. of Defining Measurements	13	8	8
Rating Error (%)	12.8	12.8	11.8

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

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Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Narrative

Seasonal runoff led to the shift to rating 8 in late March 2012. The shift to rating 9 was minor channel fill caused by movement of fine sediment.

Nine discharge measurements were taken throughout the water year, ranging from 44 to 654 cfs.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	-0.17
Maximum Recorded Stage (feet)	4.00
Range of Recorded Stage (feet)	3.83
Number of Un-Reported Days	0
Number of Days Qualified as Estimates	366
Number of Days Qualified as Unreliable Estimates	0

Narrative

The original staff gage and logger readings were determined to be compromised by their isolation from the main channel. A regression was run between staff gage values prior to the channel change and a secondary gage index. After the channel change, staff gage readings were calculated based on the regression equation.

The continuous logger data was discarded and replaced with data from Ecology station 32B100, Touchet River at Bolles Road. This data was then adjusted to match the calculated gage heights determined by the regression. All the data for this water year has been qualified as an estimate.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope Conveyance
Range of Modeled Stage (feet)	4.0 to 6.0
Range of Modeled Discharge (cfs)	1500 to 3630
Valid Period for Model	WY 2012
Model Confidence	6.6%

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
n/a	n/a

Activities Completed

Labor and Industries retrofit completed. New firmware installed
